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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/921,223	08/02/2001	Christopher A. Bower	7-211-34-47	5921

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Docket Administrator
Agere Systems Inc.
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EXAMINER	
KOPEC, MARK T	

ART UNIT	PAPER NUMBER
1751	

DATE MAILED: 01/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/921,223	BOWER ET AL.	
	Examiner	Art Unit	
	Mark Kopec	1751	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-18 is/are pending in the application.

4a) Of the above claim(s) 1-8 is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 9-18 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 02 August 2001 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-8, drawn to a process for fabricating a superconducting article, classified in class 505, subclass 450+.

II. Claims 9-18, drawn to a superconducting article, classified in class 505, subclass 100.

The inventions are distinct, each from the other because of the following reasons:

Inventions of Group I and Group II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed may be made by a materially different process such as adding sc/precursor powder to a previously formed (rolled) body/sheath.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification and their recognized divergent subject matter, and because the searches required for these

distinct groups are not coextensive, restriction for examination purposes as indicated is proper.

During a telephone conversation with Mr. Richard Botos on 12/1/03 a provisional election was made with traverse to prosecute the invention of Group II, claims 9-18. Affirmation of this election must be made by applicant in replying to this Office action. Claims 1-8 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 9-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point

out and distinctly claim the subject matter which applicant regards as the invention.

The instant claims are indefinite in that the "diffusion barrier layer" and the "metal cladding" layer are specified as the same material(s) (e.g. Fe, Ni, Ti, Mo, Nb, Ta, W, V and Hf).

There is no per se rule that "double inclusion" is improper in a claim. The governing consideration is not double inclusion, but rather is what is a reasonable construction of the language of the claims."). The facts in each case must be evaluated to determine whether or not the multiple inclusion of one or more elements in a claim gives rise to indefiniteness in that claim. The mere fact that a compound may be embraced by more than one member of a Markush group recited in the claim does not lead to any uncertainty as to the scope of that claim for either examination or infringement purposes. On the other hand, where a claim directed to a device can be read to include the same element twice, the claim may be indefinite. Ex parte Kristensen, 10 USPQ2d 1701 (Bd. Pat. App. & Inter. 1989). Claims in which one component is defined so broadly that it reads on a second, fail to meet the requirements of the second paragraph of 35 U.S.C. 112. See Ex parte Ferm et al. 162 U.S.P.Q. 504.

For examination purposes, the examiner construes even a single metal layer (e.g. Fe, Ni, Ti, Mo, Nb, Ta, W, V and Hf) to

meet every requirement for **both** "diffusion barrier layer" and the "metal cladding" layer.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for

establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 9-18 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Canfield et al (*Superconductivity in dense MgB2 wires*. Los Alamos National Laboratory, Preprint Archive, Condensed Matter (2001) 1-4, arXiv:cond-mat/0102289, 17 Feb 2001) or Sumption, M. D et al. (Transport current in MgB2 based

superconducting strand at 4.2 K and self-field. Los Alamos National Laboratory, Preprint Archive, Condensed Matter (2001) 1-9, arXiv:cond-mat/0102441, 23 Feb 2001.

Canfield et al (*Superconductivity in dense MgB2 wires.* Los Alamos National Laboratory, Preprint Archive, Condensed Matter (2001) 1-4, arXiv:cond-mat/0102289, 17 Feb 2001) discloses MgB2 wire was produced by sealing 100 μm diameter boron fiber10 andMg into a T a tube with a nominal ratio of Mg2B. Given that MgB2 is the most Mg rich binary Mg - B compound known,11 it was felt that excess Mg would aid in the formation of the proper, stoichiometric phase. The sealed T a tube was sealed in quartz and then placed into a 950.C box furnace for approximately an hour. The reaction ampoule was then removed from the furnace and quenched to room temperature (Experimental results). The reference additionally teaches unreacted core materials (first para, Results section).

Sumption, M. D et al. (Transport current in MgB2 based superconducting strand at 4.2 K and self-field. Los Alamos National Laboratory, Preprint Archive, Condensed Matter (2001) 1-9, arXiv:cond-mat/0102441, 23 Feb 2001) discloses MgB2 strands were formed by directly filling com. available MgB2 powder into Nb-lined, monel tubes and then wire drawing. The wires were then rolled into tapes 2.56 .times. 0.32 mm2, with a total

superconducting cross section of 0.2319 mm2. Transport measurements were performed using a std. four-point technique at T = 4.2 K (in liq. helium) and at self field. Three samples were prepd., with heat treatments of 900.degree., for 1, 2, and 3 h under 1/3 at Ar. Measured values of the transport current were 4.7, 7.5, and 1.1 .times. 104 A/cm2, resp., at 4.2 K and self-field. M-H loops taken on the sample HT for 1h showed magnetic Jc's of 4.2 .times. 104 A/cm2 at 4.2 K and 1 T, indicating that the material had reasonably well connected grains (Abstract). MgB2 powder (-100 mesh) was filled into a Nb-lined monel tube 6 mm in diameter. The tube was then drawn through conical dies to form a wire 50 mils in diameter which was subsequently rolled. The samples were then encapsulated under Ar and reacted at 900.C for 1 and 2 hours. Transport *Jc* measurements were made in liquid helium at self field using the standard four-point technique (Experimental section).

The disclosed MgB2 superconductive wires either specifically or inherently meet each of the instantly claimed limitations.

The references are anticipatory.

In the event that any minor modifications are necessary to meet the claimed limitations, such as selection of particular

non-superconductive particles, such modifications are well within the purview of the skilled artisan.

Claims 9-18 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Holcomb (6,586,370).

Holcomb discloses a superconductor comprising particles made of a metallic boride superconductive material, and a conductive material. The conductive material is selected to be driven to a superconductive state when in proximity to the superconductive material. An unbroken length of the conductive material is located sufficiently close to a plurality of the particles to be driven to a superconductive state by the superconductive material (Abstract). MgB_2 is specifically disclosed (Table 1), and Ta and Ti matrix materials are preferred (Table 2). FIG. 34 illustrates a portion of a wire 242 that is drawn from the elongate member 236. The material of the protective layers 234 of the granules 238 is sufficiently ductile so as to deform into a matrix 234A that fills spaces between the superconductor particles 232. The pipe container 238 is also sufficiently ductile so as to deform into a casing 238A that entirely surrounds the matrix material 234A and the superconductor particles 232. The superconductor particles 232 located closest to an inner wall of the casing 238A are spaced

from the inner wall of the casing 238A by a respective portion of the matrix 234. The superconductor particles 234 are however sufficiently close to the casing 238A so as to drive respective regions of the material of the casing 238A to a superconductive state. These regions overlap one another so as to form a continuous chain of superconductive regions extending throughout the wire 242 (Col 22, lines 53-63). The disclosed MgB2 superconductive wires either specifically or inherently meet each of the instantly claimed limitations.

The references are anticipatory.

In the event that any minor modifications are necessary to meet the claimed limitations, such as selection of particular non-superconductive particles, such modifications are well within the purview of the skilled artisan.

In view of the foregoing, the above claims have failed to patentably distinguish over the applied art.

The remaining references listed on forms 892 and 1449 have been reviewed by the examiner and are considered to be cumulative to or less material than the prior art references relied upon in the rejection above.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Kopec whose telephone number is (571) 272-1319. The examiner

can normally be reached on Monday - Friday from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Yogendra Gupta can be reached on (571) 272-1316. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1300.

Mark Kopec
Primary Examiner
Art Unit 1751

MK
January 10, 2004